

## **Marsh Migration Suitability Analysis for Delaware**

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Delaware is host to nearly 300,000 acres of wetlands but sea level rise (SLR) predictions estimate significant wetland loss with 4-foot scenarios. Marsh migration is a slow process that can allow tidal wetlands to extend further inland where conditions are appropriate. This suitability analysis was created to help identify areas with the highest potential to become tidal wetlands for a given SLR scenario. The results can be used to drive natural areas habitat management plans, identify priority areas for acquisition, and advise infrastructure adaptations and planning. We used a repeatable simplistic model in ArcGIS that combined the Delaware 4ft SLR future scenario, soil type, slope, land use/land cover (LULC), and distance to current tidal wetlands. The model excluded areas of impervious surface, open water, and the current extent of tidal wetlands. The result is a ranked layer showing the predicted suitability of land for future marsh migration. Suitable marsh migration areas were intersected with protected (publicly owned) and unprotected (privately owned) lands as well as LULC to understand ownership dynamics and land management needs. The results of the 4ft SLR migration model indicate that 26,391 acres are highly suitable for migration, a majority of which are on privately owned, unprotected lands (60%). More than 43% of the highly suitable areas are currently non-tidal wetlands and almost 34% are currently agricultural lands. Targeted outreach to related audiences and the creation of educational and online materials helped raise awareness and encourage model use by land managers and planners. A list of available resources can help landowners connect with technical and financial assistance programs and support. A landscape diagram shows a dozen passive and active adaptation actions to encourage migration and protect infrastructure.